Community-Based Initiative to Improve Medication Adherence in a Bilingual Senior Center
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Background
- Approximately 50% of medications prescribed in the US are not taken as ordered
- Medication non-adherence is complex and threatens overall health
- Medication non-adherence costs the U.S. healthcare system $100-$300 billion annually
- Non-adherence costs are especially high for older adults, often burdened by multiple comorbidities, poor health literacy, and low income
- An urban senior center in a low-income, bilingual Chicago neighborhood, medication non-adherence was noted as a problem
- In a community setting, curriculum-based weekly interventions have been shown to improve medication adherence, especially in bilingual individuals

Purpose
To improve medication adherence for older adults at a community-based, bilingual senior center by implementing a weekly educational intervention to decrease barriers

Measures
Design: Educational intervention with pre-test post-test evaluation
Framework: The Iowa Model for Evidence-Based Practice guided the community assessment, community needs, identification of the problem, and stakeholder collaboration
Setting: Community-based, urban meeting center for older adults in Chicago
- Center provides wellness services such as blood pressure screenings, exercise classes, nutrition counseling, and social work services
- Neighborhood demographic of 90% Hispanic residents, largely Spanish-speaking
Participants
- Open to all community members attending the Senior Center or utilizing its services
Demographics
- Assessed via Agency for Healthcare Research and Quality (AHRQ) survey and attendance tracked

Measures, contd.
Adapted Hill-Bone Compliance Scale
- Designed to assess the dynamics of proper adherence to medications
- Reverse scored Likert scale format [range: 8-32]; low score indicating positive health behavior
- Administered pre- and 4-months-post-intervention
CardioSmart Assessment
- Developed by American College of Cardiology (ACC)
- Administered pre- and post-intervention to evaluate knowledge regarding medication adherence and chronic disease
- The topics covered in this assessment reflect the topics of the educational intervention: medication methods, health literacy, healthy lifestyles, and side effects
- Administered pre- and post-intervention

Methods
Development of Intervention
- Developed curriculum for six interactive, weekly sessions with participants, including take-home packets for participants
- Information for content gathered from AHRQ, Centers for Disease Control and Prevention, World Health Organization, and the Food and Drug Administration
Recruitment
- Intervention schedule was confirmed by stakeholder communication
- Marketing began August 2019 with chalkboard advertisements through the center
- Announcements made during blood pressure clinic every Tuesday for four weeks
- A sign-up sheet was used to estimate participation

Educational intervention
- Six one-hour sessions, plus Q&A
- Sessions conducted in English and Spanish
- All materials, tools, scales, and advertisements were translated to Spanish by a native speaker

Educational Intervention Weekly Modules and Content

<table>
<thead>
<tr>
<th>Weekly Module</th>
<th>Content</th>
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<tbody>
<tr>
<td>1) Chronic Disease Overview</td>
<td>• Introduction of medication adherence • Distribution of CardioSmart pre-learning assessments • Discussion of learning objectives</td>
</tr>
<tr>
<td>2) Overcoming Barriers</td>
<td>• Discussion of barriers to proper medication adherence • Introduction and explanation of Walmart $4 medication list</td>
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<tr>
<td>3) Side Effects</td>
<td>• Discussion of common side effects • Encouragement of participants to discuss side effects with health care providers</td>
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<tr>
<td>4) Reminder Methods</td>
<td>• Distribution of pillboxes • Explanation and demonstration of proper pillbox use</td>
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<tr>
<td>5) Using Your Resources</td>
<td>• Discussion about the importance of communication with health care providers • Discussion of CDC and AHRQ strategies to foster trust</td>
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<tr>
<td>6) Written Reminders/Conclusions</td>
<td>• Distribution of individualized medication adherence wallet cards • Distribution of CardioSmart post-learning assessments and final program evaluations</td>
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Analysis
- Data were analyzed using standard descriptive statistics and dependent T-tests

Results

<table>
<thead>
<tr>
<th>Demographics (n=16)</th>
<th>(%)</th>
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<tbody>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>56%</td>
</tr>
<tr>
<td>Race</td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>46%</td>
</tr>
<tr>
<td>Caucasian</td>
<td>44%</td>
</tr>
<tr>
<td>African American</td>
<td>10%</td>
</tr>
<tr>
<td>Primary Language</td>
<td></td>
</tr>
<tr>
<td>Spanish-Speaking</td>
<td>46%</td>
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<tr>
<td>Age, [range] M (SD)</td>
<td>[57-79] 64 (5.9)</td>
</tr>
</tbody>
</table>

Results of Hill Bone Compliance Scale (HBCC) and CardioSmart

<table>
<thead>
<tr>
<th></th>
<th>Pre- Intervention M (SD)</th>
<th>Post- Intervention M (SD)</th>
<th>Dependent T statistic</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>HBCC Score (n=10)</td>
<td>25.8 (30.1)</td>
<td>11.2 (19.8)</td>
<td>9.504</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>CardioSmart Score (n=3)</td>
<td>3.9 (2.3)</td>
<td>7.0 (1.7)</td>
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- Self-reported medication adherence showed statistically significant improvement
- Improved knowledge was clinically significant in a small sample (58%)

Conclusion
- Despite a small sample size, this educational intervention was successful at increasing medication adherence and knowledge in older adults
- Weekly evidence-based content was well received by this population
- Similar educational interventions should be tested at this site with larger sample sizes
- Support for sustainability is evident, with stakeholders planning to use content for further programming; but opportunities for further educational interventions remain limited due to population vulnerability and COVID-19 restrictions

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